UNIVERSITI PUTRA MALAYSIA

EXPORT COMPETITIVENESS INDICATORS OF THE FIJIAN SUGAR INDUSTRY

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FP 2005 16

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Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Master of Science

September 2005

Dedication

To my grandparents and my beloved father (pitaji) who left us when I was doing my Diploma Course

Also to my mother (mataji) who always impressed upon us to strive for excellence, and my family who helped me to share my responsibilities while I was pursuing my study.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

EXPORT COMPETITIVENESS INDICATORS OF THE FIJIAN SUGAR INDUSTRY

By

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September 2005

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Faculty : Agriculture

Competitiveness has always been a concern to most countries in recent years. The major problem, which is facing the Fijian sugar industry, is the decline in its share in the world market. This indicates that Fiji's export competitiveness in the world market is declining. The objective of this study is to examine the export competitiveness of the Fijian sugar industry by using selected indicators. The study utilises revealed comparative advantage (RCA), constant market-share (CMS) and shift-share technique to measure the competitiveness of the industry.

The study uses secondary data collected from various sources, namely, the FAO, COMTRADE (ITC), UNCTAD, and FIBS and the analysis for this study is restricted to trade data from (1989 to 2003). The data is decomposed into three, five-year periods, i.e. Period I (from 1989-93), Period II (1994-98) and Period III (1999-2003). The five-year periods is chosen because these periods coincide with the major policy changes, which are based on five-year development plan and political polices.

The results obtained from the RCA computation indicates that Fiji has a comparative advantage in producing sugar. The performance of the industry for period 1989 to 1990 showed a comparative disadvantage, where RCA was less than one. However, it improved from 1991 but it showed a fluctuating trend in the performance. The RCA from 1992 onward was above one indicating comparative advantage. The Export Performance Ratio was 92.66 percent for period I, 86.47 percent for period II and 70.10 percent for period III. This indicates that Fiji's comparative advantage was declining over the study period. This happened because Fiji had to import sugar in period II and period III to maintain the requirements for preferential quota in EU market.

Result of the Constant Market Share analysis shows that size of market is one of the dominating factors which determine the expansion of export of a country. In the case of Fiji, the opportunities exist for more export of sugar if Fiji has had maintained its market share of period I. However, the statistic revealed that Fiji's sugar production has declined and this subsequently has led to the decline in export. Fiji's sugar market competitiveness effect was negative between period I and II. This was due to the reduction in Fiji's share in the world export market. If Fiji had maintained its share of period I, it would have an export market potential of 570,145 tonnes for period III (1999-2003), but it only exported 364,703 tonnes, resulting in a hypothetical loss of 205,442 tonnes. The fall in sugar production was due to a drop in cane production, which is attributed to non-renewal of agricultural land leases. The situation was further compounded by the adverse effect of climate such as drought and the hurricane.

Result of the shift share analysis indicates that the market opportunities of Fiji's sugar are mainly offered by Indonesia, Malaysia, Korea, Canada, Singapore, China, New Zealand, and South Pacific Island States countries. In order to be competitive, the Fijian sugar industry needs to increase its share in the total export of Fiji. The competitiveness of the sugar industry was decreasing mainly due to the inability of the industry to maintain its sugar export share in world market due to the decrease in sugar production.

Based on the above findings, and because sugar is a major contributor to the Fijian economy, it is imperative that the government rejuvenate the sugar industry by introducing several development programs and policies. These should include the followings: (i) integration of small farms into plantations, (ii) introduction of improved technology, (iii) making changes to in the payment system by giving emphasis on quality, (iv) provision of security to tenants, and (v) increase downstream activities.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

PETUNJUK-PETUNJUK DAYA SAING BAGI EKSPORT INDUSTRI GULA DI FIJI

oleh

SATYA NAND SHANDIL

September 2005

Pengerusi: Profesor Mohd Ghazali Mohayidin, PhD

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Daya saing telah menjadi isu utama bagi beberapa negara semenjak beberapa tahun kebelakangan ini. Masalah utama yang dihadapi oleh industri gula ialah pengurangan dalam hasil tanaman tebu dan penurunan syer di pasaran. Objektif kajian ini adalah untuk menilai daya saing ekspot dalam industri gula di Fiji dan mengenal pasti peluang pasaran. Kajian ini menggunakan petunjuk seperti petunjuk perbandingan daya saing (RCA), pasaran syer malar (CMS) dan kaedah anjakan syer (Shift-Syer) untuk mengukur daya saing sesebuah industri.

Kajian menggunakan data sekunder yang diperoleh dari pelbagai sumber (FAO, COMTRADE, UNCTAD, FIBS) dan analisis kajian ini meliputi data dagangan dari tahun (1989-2003). Data ini telah dibahagikan kepada tiga peringkat di mana setiap peringkat mengambil masa lima tahun masa iaitu tempoh I dari tahun 1989-1993, tempoh II 1994-1998 dan tempoh III 1999-2003. Perbandingan dibuat di antara pasaran supaya unjuran potensi pasaran dapat dilakukan. Tempoh lima tahun dipilih

kerana struktur utama dasar di mana peralihan politik dan kebiasaan polisi baru dibentuk mengambil asas 5 tahun. Oleh itu, tempoh ini dijadikan sebagai panduan.

Hasil kajian diperoleh dengan mengira RCA bagi menentukan Fiji mempunyai kelebihan daya saing dalam pengeluaran gula. Penemuan kajian menunjukkan prestasi bagi industri dari tahun 1989 hingga 1990 tidak terdapat kelebihan daya saing dimana RCA adulah kurang daripada satu.Bagaimanapun semenjak tahun 1991 terdapat kemajuan dalam pengeluaran gula tetapi aliramyatadak meneutu. Nilai RCA semenjak tahun 1992 ke atas merupakan lebin daripada satu di mana ia mempunyai kelebihan daya saing.Hasil kajian ke atas prestasi nisbah eksport adalah 92.66 percent bagi tempoh I, 86.47 percent bagi tempoh II dan 70.10 percent bagi tempoh III. Ini menunjukkan Fiji mengalami penurunan daya saing di dalam tempoh tersebut.Kejadian ini disebabkan oleh hasil import gula Fiji dalam tempoh II dau tempoh III bagi menampung kuata pasaran EU

Penemuan dari analisis pasaran malar menunjukkan saiz pasaran adalah satu faktor yang dominan bagi menentukan pengembangan eksport negara. Di dalam kes ini peluang eksport Fiji, akan meningkat jika Fiji meningkatkan syer pasaran dalam tempoh I, tetapi statistik menunjukkan hala tuju yang menurun. Di sebabkan itu daya saing Fiji adalah negatif dalam tempoh I dan II. Ini berdasarkan penurunan syer Fiji di dalam eksport pasaran dunia. Jika Fiji mengekalkan syer bagi Tempoh I, maka potensi pasaran eksport adalah 570,145 tan bagi tempoh III (1999-2003). Akan tetapi eksport sebenar ialah 364,703 tan dimana secara hipotical rugi sebanyak 205,442 tan. Kejatuhan pengeluaran gula disebabkan ini adalah disebabkan oleh kejatuhan pengeluaran tebu yang dipengaruhi oleh pengurungan pembaharuan lesen pertanian dan juga kesan buruk dari cuaca dan ribut yang melanda.

Penemuan analisis anjakan syer menunjukkan peluang pasaran gula kepada Fiji terletak di negara seperti Indonesia, Malaysia, Korea, Kanada, Singapura, China, New Zealand dan Negara-negara Kepulauan Pasifik salatan. Kajian ini mencadangkan supaya Fiji meningkatkan syer pasaran, mengurangkan kos pengeluaran dan meningkatkan kecekapan pengeluaran bagi membolehkan industri menjadi lebih berdaya saing dari segi harga dan kualiti. Didalam usaha meningkatkan pengeluaran langkah pembaharuan lesen pertanian mesti di segerakan supaya dapat mengelakkan petani keluar dari industri ini.Penurnan daya saing industri gula adalah disebabkan oleh kegagalan untuk mengekalkan pasaran oyer gula dalam pasaran dunia. Penyebah utama dalam penurunan exporet gula adalah disebabkan oleh kuranguya pengeluaran gula. Di samping itu penambahbaikan amalan pengurusan ladang dan peningkatan kecekapan teknologi perlu dilaksanakan bagi mengurangkan kos pengeluaran dan memperbaiki kecekapan serta meningkatkan pengeksportan gula

ACKNOWLEDGEMENTS

All praises to the Almighty Lord, the Most Gracious and Merciful, who is omnipresent, for giving me the strength and determination to complete this study. I owe a lot of gratitude to many people and institutions for their kind help and support at various stages of my research work. No words can express adequately my sense of indebtedness yet I feel I shall be failing in my obligation if I do not put on record my gratitude to the following people;

It is my pleasure to express my sincere gratitude and appreciation to the Chairman of my thesis supervisory committee, Professor Dr. Mohd Ghazali Mohayidin, who was also my advisor throughout the duration of my study, for his critical assessment, helpful suggestions, guidance and patience in the writing of this thesis. Special thanks are also due to my supervisory committee members, Professor Dr. Mad. Nasir Shamsudin who was the first person that helped me to settle in Universiti Putra Malaysia. I thank him for his critical remarks and suggestions in writing this thesis and without his help the task would have been difficult. Special thanks are also dedicated to Professor Dr. Fatimah Mohd Arshad (Faculty of Economics and Management) who helped me to understand the scope of research and her helpful guidance throughout the duration of my work. It was through their kind encouragement, critical assessment and valuable and fruitful discussion that made my work more meaningful.

It is also my pleasure to thank Dr. Mohd. Mansor Ismail and Dr. Rosli Saleh , not forgetting all the lecturers and staff at the Department of Agribusiness and

Information System, Faculty of Agriculture, UPM for their guidance and support throughout during my study. Also to my colleagues Haji Hairuddin from Malaysia Abudulla Fara from Somalia, Azhar from Indonesia and Golnaz Rezai from Iran, thanks for your support and encouragement which have made my stay and study a memorable one in Malaysia.

I am also very thankful to the High Commissioner of Fiji to Malaysia, her Excellency Adi Samanunu Cakabau, for allowing me to freely stay at their residence whenever I liked and also made helpful suggestion on sugar issues. Mr George, man with lots of ideas who was there to help and made me feel that I was at home. To the Principal of Natabua High School, Mr. Satindra Deo, for his willingness to accommodate me while I was doing my data collection, also Principal of my former school (Buca Levu Secondary), Mr. Waisake Vuli Ravutu for who has always believed in equal opportunities, recommended me for a scholarship. These two people made a big impact in my working life in terms of making objective decisions while they were Heads of School where I was teaching.

I am really grateful to the Malaysian Government in providing me the scholarship and my employer Ministry of Education and TVET section for allowing me in-service leave to pursue my studies.

Least but not the last my wife and daughter and family members for sharing some of my responsibilities and bearing with me for some decisions I made that were hard but I had no choice and a decision had to be made.

I certify that an Examination Committee met on 30th September 2005 to conduct the final examination of Satya Nand Shandil on his Master of Science thesis entitled "Export Competitiveness Indicators of the Fijian Sugar Industry" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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This thesis submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the Degree of Master of Science. The members of the Supervisory Committee are as follows:

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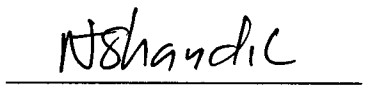
DECLARATION

I hereby declare that this thesis is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



SATYA NAND SHANDIL

Date: 12-11-2005

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LIST OF ABBREVIATIONS

ABARE	Australian Bureau of Agricultural and Research Economic
ADB	Asian Development bank
ACP-EU	African Caribbean Pacific European Union
ALTA	Agricultural Landlord and Tenant Act
CB	Caribbean Basin
CEC	Commission of the European Community
CEE	Central Eastern Europe
CMEA	Common Market Exporting Association
CMS	Constant Market Share
CSRC	Colonial Sugar Refining Company
DRC	Domestic Resource Cost
EC	European Community
EEC	European Economic Community
EU	European Union
EPA	Economic Partnership Agreement
EPR	Export Performance Ratio
FIBS	Fiji Islands Bureau of Statistics
GATT	General Agreement on Tariff and Trade
FSC	Fiji Sugar Cooperation
GOF	Government of Fiji
FSTU	Fiji Sugar Trade Union
FSGWU	Fiji Sugar Growers and Workers Union
GDP	Gross Domestic Product

Ha/ha	Hectare
HAD	Hard Amber Durum
HRS	Hard Red Spring
HRW	Hard Red Winter
IAE	Industrially Advanced Economics
LDC	Least Developed Countries
LMCS	Landell Mills Commodities Studies
MPI	Ministry of Primary Industries
MRCA	Relative Import Penetration
NAFTA	North American Free Trade Agreement
NLTB	Native Land Trust Board
NFU	National Farmers Union
NE	Net Export
OECD	Organisation for Economic Cooperation and Development
PAM	Policy Analysis Matrix
PRA	Price Ratio Algorithm
RCA	Revealed Comparative Advantage
RCR	Resource Cost Ratio
RTA	Relative Trade Advantage Index
SAC	Sugar Advisory Council
SCGC	Sugar Cane Growers Council
SCP	Structure Conduct and Performance
SCRC	Sugar Cane Research Centre
SITC	Standard International Trade Classification
SCOF	Sugar Commission of Fiji

SPS	South Pacific Island States
TCTS	Total Cane to Total Sugar ratio
TFP	Total Factor Productivity
TP	Total Product
TQM	Total Quality Management
UK	United Kingdom
UNIDO	United Nation International Development Organisation
USA / US	United States of America
WTO	World Trade Organisation
XRCA	Export Index of Revealed Comparative Advantage

CHAPTER 1

INTRODUCTION

1.1 Background of the Industry

Fiji sugar was born in a Faustian deal: cheap indigenous land and low cost "girmit" indentured workers from India. It started as a plantation operation but moved to individual farmers who, under the Agricultural Landlord and Tenant Act (ALTA) obtained long and cheap leases. A century on and the leases are expiring and indigenous owners want their land back. After generations, the Indians are leaving the land and the indigenous Fijians, for the most part, are not keen on growing sugar, thus threatening the future of the industry. The farming sector is worth approximately F$400 million (2004), more than 14 percent of GDP. Of this the sugar industry contributes about 6 percent to the total GDP (2003). Sugar industry contributes about 37 percent of the total agricultural activity, Table 1 p2.

The plantation sector of sugar industry activity, accounts for more than 38 percent of the total agricultural sector and whereas the processing sector of sugar accounts for 30 percent of the total manufacturing sector. The two sub sectors provide employment for more than a quarter of Fiji's workforce, making it the largest single source of employment. Sugar also accounted for 40 percent of the country's exports in 1980 and it was about 26 percent in 2003 (FIBS), and goes a long way towards mitigating the constrictive effects of its small open economy. In other words, sugarcane farming and processing are together the most important component of the Fijian economy.

SUGAR AS A PERCENTAGE OF TOTAL GDP
(AT CONSTANT PRICE F$M)

Table 1.0

Year	Total GDP	Agriculture	Sugar	Agric. As a % of GDP	Sugar as a % of GDP	Sugar as a % of Agric
1995	2373	371.33	178.61	15.65	7.53	48.10
1996	2485.2	404.23	188.42	16.27	7.58	46.61
1997	2429	344.58	120.00	14.19	4.94	34.83
1998	2459	353.26	98.89	14.37	4.02	27.99
1999	2685.4	491.02	229.52	18.28	8.55	46.74
2000	2609.5	394.97	131.19	15.14	5.03	33.22
2001	2679.9	360.53	105.19	13.45	3.93	29.18
2002	2795	403.12	147.84	14.42	5.6 9	36.67

Source: Fiji Islands of Bureau of Statistics September 2003

In 2003 sugarcane was farmed on 22,340 registered farms in Fiji. The average size of these farms was 4.6 hectares with an average area under cultivation of 3.68 hectares. The average cane yield was 56 tonnes per hectare, with the average gross revenue per farm at around US$5,000. The majority of sugarcane farms are small production units operating for most of the year using household labour. The cane is harvested manually under a complex "gang" system which involves the farmers themselves working alongside some 15,000 seasonal harvesters, many of whom are landless migrants. Cane cutters come from both the indigenous Fijian and Indo-Fijian communities. Sugarcane is processed into raw sugar at four mills owned by the Fiji Sugar Corporation (FSC), a public-listed company in which the government owns 68 percent of the shares. Fiji's four sugar mills, which also have storage and handling facilities, are capable of producing 500,000 tonnes of sugar a year. The earnings which accrue to farmers and the FSC from processing are based on an average price earned from sugar sales in all markets. After making certain

deductions for industry costs, farmers receive approximately 70 percent of the total net proceeds in four payments, with the remaining 30 per cent going to the miller.

About ninety percent of Fiji's raw sugar is exported to international markets, mostly at premium prices under the African Caribbean Pacific and European Union (ACP/EU) Sugar Protocol and other preferential arrangements. Few sugar-producing countries are dependent to this extent on the export market. The industry also plays a significant role in generating internal food supply as cane farmers produce agricultural crops and livestock for their own consumption as well as for cash sale. Sugar consumption in the country itself, averaging 50 kilograms per capita per year, is about twice the world average per capita consumption.

Before the mid 1980s, Fiji was regarded internationally as an efficient producer and reliable supplier of high quality sugar. Currently it has none of those rankings. Report by (LMCS),1991, found that Fiji is now ranked among the lowest in terms of key performance indicators such as cane yield per hectare, sugar yield per hectare, tonnes of cane to tonnes of sugar ratio, and sugar produced per tonne of milling capacity. However, its sugar mills are of average size by world standards. The question that needs to be asked is what went wrong during the past 15 or so years that the industry has declined rapidly as stated by LMCS.

The sugar industry initially started on a plantation and estate system by Colonial Sugar Refining Company (CSR) but changed to tenant and small farm system. Farms were